

10 August 1981

SUPERSEDING

MIL-W-16878/4A(NAVY)(IN PART)

5 July 1961

(See supersession data herein)

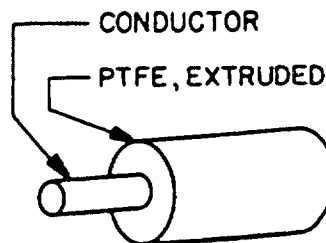
MILITARY SPECIFICATION SHEET

WIRE, ELECTRICAL, POLYTETRAFLUOROETHYLENE

(PTFE) INSULATED, 200°C, 600 VOLTS, EXTRUDED INSULATION

This specification sheet is approved for use by the Naval Sea Systems Command, Department of the Navy, and is available for use by all Departments and Agencies of the Department of Defense.

The complete requirements for acquiring the wire described herein shall consist of this document and the latest issue of MIL-W-16878.



SH 11875

FIGURE 1. Construction.TABLE I. Construction details.

Wire size	Stranding	Conductor		Conductor diameter (nominal) (inch)	Finished wire	
					Diameter (inch)	
		Material <u>2/ 3/</u>	Coating		Min	Max
32	1 X 32	Copper	Silver	0.0089	0.025	0.033
32	1 X 32	H.S.C.A.	Silver	.0089	.025	.033
32	1 X 32	C.C. Steel	Silver	.0089	.025	.033
32	7 X 40	Copper	Silver	.010	.026	.034
32	7 X 40	H.S.C.A.	Silver	.010	.026	.034
30	1 X 30	Copper	Silver	.0100	.026	.034
30	1 X 30	H.S.C.A.	Silver	.0100	.026	.034

See footnotes at end of table.

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TABLE I. Construction details. Continued

Wire size	Stranding	Conductor		Conductor diameter (nominal) (inch)	Finished wire	
		Material 2/ 3/	Coating		Diameter (inch)	
					Min	Max
30	1 X 30	C.C. Steel	Silver	0.0100	0.026	0.034
30	7 X 38	Copper	Silver	.012	.028	.036
30	7 X 38	H.S.C.A.	Silver	.012	.028	.036
28	1 X 28	Copper	Silver	.0126	.029	.037
28	1 X 28	H.S.C.A.	Silver	.0126	.029	.037
28	1 X 28	C.C. Steel	Silver	.0126	.029	.037
28	7 X 36	Copper	Silver	.015	.031	.039
28	7 X 36	H.S.C.A.	Silver	.015	.031	.039
26	1 X 26	Copper	Silver	.0159	.032	.040
26	1 X 26	H.S.C.A.	Silver	.0159	.032	.040
26	1 X 26	C.C. Steel	Silver	.0159	.032	.040
26	7 X 34	Copper	Silver	.019	.035	.043
26	7 X 34	H.S.C.A.	Silver	.019	.035	.043
26	19 X 38	Copper	Silver	.020	.035	.043
26	19 X 38	H.S.C.A.	Silver	.020	.035	.043
24	1 X 24	Copper	Silver	.0201	.036	.044
24	1 X 24	H.S.C.A.	Silver	.0201	.036	.044
24	1 X 24	C.C. Steel	Silver	.0201	.036	.044
24	7 X 32	Copper	Silver	.024	.040	.048
24	7 X 32	H.S.C.A.	Silver	.024	.040	.048
24	19 X 36	Copper	Silver	.025	.040	.048
24	19 X 36	H.S.C.A.	Silver	.025	.040	.048
22	1 X 22	Copper	Silver	.0254	.041	.049
22	1 X 22	H.S.C.A.	Silver	.0254	.041	.049
22	1 X 22	C.C. Steel	Silver	.0254	.041	.049
22	7 X 30	Copper	Silver	.030	.046	.054
22	7 X 30	H.S.C.A.	Silver	.030	.046	.054
22	19 X 34	Copper	Silver	.032	.046	.054
22	19 X 34	H.S.C.A.	Silver	.032	.046	.054
20	1 X 20	Copper	Silver	.0320	.048	.056
20	1 X 20	H.S.C.A.	Silver	.0320	.048	.056
20	7 X 28	Copper	Silver	.038	.054	.062
20	7 X 28	H.S.C.A.	Silver	.038	.054	.062
20	19 X 32	Copper	Silver	.040	.054	.062
20	19 X 32	H.S.C.A.	Silver	.040	.054	.062
18	1 X 18	Copper	Silver	.0403	.056	.066
18	7 X 26	Copper	Silver	.048	.064	.074
18	19 X 30	Copper	Silver	.050	.064	.074
16	1 X 16	Copper	Silver	.0508	.067	.081
16	19 X 29	Copper	Silver	.057	.073	.087
14	19 X 27	Copper	Silver	.072	.088	.102

TABLE I. Construction details. Continued

Wire size	Stranding	Conductor		Conductor diameter (nominal) (inch)	Finished wire	
		Material <u>2/</u> <u>3/</u>	Coating		Diameter (inch)	
					Min	Max
12	19 X 25	Copper	Silver	.091	.107	.121
12	37 X 28	Copper	Silver	.089	.105	.119
10	37 X 26	Copper	Silver	.111	.127	.141

1/ Inactive for new design.

2/ H.S.C.A. stands for high strength copper alloy.

3/ C.C. Steel stands for copper clad steel

4/ Under MPD-1506, type E, 16 AWG size was heavier.

REQUIREMENTS:

Visual and mechanical inspection: Applicable.

Spark test: 3.4 kilovolts (kV).

Impulse dielectric test: 6.5 kV.

Tank test: 2.0 kV.

Dielectric withstanding voltage: 2.0 kV.

Insulation resistance: $IR = K \log_{10} D/d$.

Where: IR = Minimum insulation resistance in megohms per 1000 feet at 20°C.

K = 50,000

D = Maximum average diameter of finished wire

d = Conductor diameter

Cold bend: Condition 4 hours at minus 65°C \pm 1°C (see table II).

TABLE II. Cold bend mandrel sizes

Wire size	Cold bend mandrel (maximum diameter) (inches)
32 through 16	1
14 through 10	2

Concentricity: 70 percent (minimum).

Surface resistance: 5 megohms (minimum).

Wrap back: Required.

Flammability: Not applicable.

Soldering: Applicable.

Heat aging: Not applicable.

Insulation tensile strength: 3000 pounds force per square inch (minimum).

Insulation elongation: 150 percent (minimum).

Stripe durability: Applicable.

Fungus resistance: Applicable.

Maximum direct current resistance of finished wire: See table I of MIL-W-16878.

TABLE III. Put-up tabulation. 1/

AWG size	Percentage of order	Length (ft) one continuous length	Max. no. of lengths (per spool or reel)	
			500 ft	1000 ft
32 to 22	25	Under 75	3	4
	25	75 - 300		
	50	301 or more		
20 to 16	Unacceptable	Under 75	4	5
	20	75 - 100		
	50	101 - 300		
14 to 10	30	301 or more	5	6
	Unacceptable	Under 50		
	40	50 - 100		
	50	101 - 300		
	10	301 or more		

1/ Each spool or reel shall be marked accordingly with the length in feet and location of each piece.

Military part number (see MIL-W-16878):

	<u>M16878/</u>	<u>4</u>	<u>B</u>	<u>C</u>	<u>B</u>	<u>905</u>
Military designation	_____	_____	_____	_____	_____	_____
Specification sheet	_____	_____	_____	_____	_____	_____
		Conductor material	Conductor size	Conductor stranding	Color code	

Supersession data: The wire covered by this specification sheet supersedes MIL-W-16878/4A(NAVY), type E, 200°C rated, extruded without jacket.

Review activities:
Navy - AS, EC

Preparing activity:
Navy - SH
(Project 6145-N300-4)

User activities:
Navy - OS, MC